WATERSHED MANAGEMENT AREA 3

POMPTON RIVER DRAINAGE

The watershed management area includes watersheds draining the highlands portion of New Jersey. The Pequannock, Wanaque and Ramapo Rivers all flow into the Pompton, which in turn is a tributary to the upper Passaic River. This management area contains some of the state's major reservoir systems. The Area lies mostly in Passaic County and includes the following watersheds:

Pompton River
Ramapo River
Pequannock River
Wanaque River

Summary of ambient physical/chemical monitoring stations classifications

Station	Classification
Pequannock River at Macopin Intake	FW-2 Trout Maintenance
Ramapo River near Mahwah	FW-2 Nontrout
Pompton River at Packanack Lake	FW-2 Nontrout

Note: The monitoring station Wanaque River at Wanaque (FW-2 Nontrout) has been discontinued.

OVERALL MANAGEMENT AREA ASSESSMENT

- Swimmable Support Status:

WATERWAY	LOCATION	STATUS
Pequannock River	at Macopin Intake	Full Support
Ramapo River	near Mahwah	No Support
Pompton River	at Packanack Lake	No Support

- Summary of Aquatic Life Support Status (Number of stations within each assessment category). Note: See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed management area.

No Impairment: 5 Mod. Impairment: 11 Severe Impairment: 1

MAPS here

PEQUANNOCK RIVER

WATERSHED DESCRIPTION

The Pequannock River is 30 miles long and drains an area of 90 square miles. Its headwaters are in Sussex County and it flows east, delineating the Morris/Passaic County line. It continues flowing east and joins the Wanaque River and flows to the Pompton River in Wayne Township. There are many lakes, ponds and reservoirs in this area; the major impoundments are the Kikeout Reservoir, Lake Kinnelon, Clinton Reservoir, Canistear Reservoir, Charlottsburg Reservoir, Oak Ridge Reservoir and Echo Lake Reservoir. The major tributary is Stonehouse Brook. Population in this watershed is centered in Butler and in Bloomingdale Townships.

The great majority of the land in this watershed is forested and protected for water supply purposes and parklands. The remaining lands are under residential and industrial/commercial use. There are approximately 20 NJPDES permitted discharges; about one-third are municipal and two-thirds are industrial. Waters are classified FW-1 in the Newark water supply area, FW-2 Trout Production, FW-2 Trout Maintenance, and FW-2 Nontrout elsewhere.

WATER QUALITY ASSESSMENT

Physical/Chemical Water Quality

Location:. Pequannock River at Macopin Intake

Dissolved Oxygen: Acceptable.

Temperature: Twenty-two percent of samples during the period of assessment were in violation of the upper criterion for trout maintenance waters.

Nutrients: Eleven percent of phosphorous samples were in violation of the criterion, indicating slight elevations. The median phosphorous level was 0.035 mg/l. Nitrate+Nitrite levels were low, having a median value of 0.23 mg/l as N.

Bacteria: Sanitary quality at this location is excellent; fecal coliform geometric mean is 10 MPN/100ml.

Heavy Metals: Violations of both copper and lead were recorded. Two of the three copper samples taken during the period of assessment exceeded both the acute and chronic criteria for this metal. One of the three lead samples exceeded the chronic criterion for lead.

Summary: Station is characterized by excessive summertime water temperatures that could be deleterious to aquatic life. Phosphorous was slightly elevated. Nitrate+Nitrite levels and sanitary quality were very

acceptable. Of special concern are violations of copper and lead levels observed at this location.

Biological Monitoring
Macroinvertebrate assessments indicate the Pequannock River to be non-impaired with the exception of its most upstream monitoring site where it is assessed as being moderately impaired. Biological health of the tributaries to the Pequannock varied. Mossmans Brook and Kanouse Brook are assessed as moderately impaired. The Macopin River is non-impaired while Clinton Brook is severely impaired. See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed.

POINT SOURCE ASSESSMENT

The Pequannock River watershed is primarily forested and located in protected water supply lands. As a result, development and pollution sources are, for the most part, limited.

The following wastewater treatment plant has been upgraded and/or expanded and has renewed operation:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Frank's Sanitation	Riverdale Borough, Morris Co.	Pequannock River	Facility discharged stormwater runoff and truck washwater with frequent violations of COD, total suspended solids and petroleum hydrocarbons. Facility ceased its permitted outfall and truck washing operations in 1992.

NONPOINT SOURCE ASSESSMENT

The principal source of nonpoint pollution in the Pequannock River watershed from Stockholm to the Pompton River is urban/suburban development. In general, water quality declines as one travels downstream, especially as one passes through the Butler-Bloomingdale area. Reported pollution sources include rising levels of runoff from roads, building construction, urban surfaces, storm sewers and surface mines. Additional problems below Bloomingdale include channelization, streambank modification, and the removal of riparian vegetation. All this is reported by local authorities as having contributed to high water temperatures, silt loads and organic pollution.

DESIGNATED USE ASSESSMENT

The Pequannock River will support the "aquatic life support" designated use in most parts of the river; the uppermost portion partially supports the use. Tributaries vary from full support (Macopin River) to no support (Clinton Brook). Monitoring at the Macopin Intake finds that the river will fully support the swimmable use at this location.

Bluegreen algal blooms were reported in the lower portion of the Pompton in July of 1994. These blooms were dense enough to temporarily impair the use of the water as a potable water source.

RAMAPO AND POMPTON RIVERS

WATERSHED DESCRIPTION

The Ramapo River has a drainage area of about 160 square miles, 110 of which are in New York State. It flows from New York into Bergen County and enters the Pequannock River to form the Pompton River in Wayne Township. The Ramapo River is 15 miles long in New Jersey. The Pompton River is a tributary to the Passaic River and is 7 miles long. Major impoundments include Point View Reservoir #1, Pompton Lake and Pines Lake. The population centers are Mahwah, Pompton Lakes, Pompton Plains, Oakland and Franklin Lakes.

Over one-half of this watershed is undeveloped, with the remainder primarily suburban/commercial/industrial. New development is extensive in many areas of the watershed. There are approximately 25 NJPDES permitted discharges present in the two watersheds, over 15 of which are municipal and the remaining industrial. Waters have been classified FW-2 Trout Production and FW-2 Nontrout.

WATER QUALITY ASSESSMENT

Location: Ramapo River near Mahwah

Dissolved Oxygen: Acceptable.

Nutrients: Phosphorous is somewhat elevated; median value was 0.15 mg/l, with eleven percent of phosphorous samples in violation of the criterion. The median Nitrate+Nitrite level was 1.2 mg/l.

Bacteria: Elevated. Geometric means of fecal coliform is 278 MPN/100 ml.

Sodium: Elevated at this location. Twenty percent of samples exceed the 50 mg/l criterion.

Heavy Metals: Although no violations of criteria were recorded, copper and lead levels are somewhat elevated and should be of concern at this location.

Summary: Phosphorous and sodium are somewhat elevated. Sanitary quality is unacceptable. Copper and lead could be threatening water quality at this location.

Locations: Pompton River at Packanack Lake

Dissolved Oxygen: Acceptable.

Nutrients: Phosphorous is elevated; 20% of samples in violation of the criterion. Median value was 0.06 mg/l. The median Nitrate+Nitrite level was an acceptable 0.81 mg/l.

Bacteria: Elevated. Geometric mean of fecal coliform is 271 MPN/100 ml.

Sodium: Slightly elevated at this location. Three percent of samples exceed the 50 mg/l criterion. Median value was 26 mg/l.

Heavy Metals: Although no violations of criteria were recorded, a copper sample (one of four) was somewhat elevated during the early portion of the assessment period.

Summary: Phosphorous and bacteria are elevated. Sodium and copper may be of concern here and should be watched.

Biological Monitoring

Macroinvertebrate assessments indicate that both the Ramapo and the Pompton Rivers are moderately impaired at all monitoring locations (see the Biological Assessment Table located at the end of this section).

POINT SOURCE ASSESSMENT

The Ramapo has a significant discharge to it in New York State before it flows into New Jersey.

One discharger to the Ramapo River has been eliminated:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Urban Farms Shopping Center	Franklin Lakes	Pond Brook	ACO eliminated Urban Farms wastewater treatment plant and had the flow directed to the Passaic Valley Sewerage Commissioners treatment plant in Newark. Connection was completed in April 1993.

NONPOINT SOURCE ASSESSMENT

Moderate, yet increasing, levels of suburban/urban development along the length of the Ramapo River have resulted in both a loss of habitat for biota and an apparent decline in water quality from siltation and elevated stream temperatures. Runoff from housing and road construction sites, and runoff from urban surfaces and storm sewers, have contributed significantly to pollution in the waterways. The construction of Interstate 287 has had a significant impact upon the Ramapo. Habitat loss in this river has been expanded and intensified by local dredging and channelization. The fisheries in the Ramapo are also considered threatened by agricultural activity in the watershed.

Urban development has resulted in water quality degradation in the Pompton River as reported by local authorities. Increasing levels of runoff from construction activity, urban surfaces, storm sewers, and surface mining, together with dredging and the removal of riparian vegetation, have contributed to silt and nutrient loading, elevated stream temperatures, and flooding. The fish community in the Pompton has been reduced to species that are tolerant of degraded conditions; few game fish are present and species diversity is low in many areas of the river.

DESIGNATED USE ASSESSMENT

The Ramapo and Pompton Rivers will only partially support the "aquatic life support" designated use. Neither river is of swimmable quality due to elevated bacterial levels.

WANAQUE RIVER

WATERSHED DESCRIPTION

The Wanaque River, with its headwaters in New York State, has a total drainage area of 108 square miles. That part which is in New Jersey lies in Passaic County. Its headwaters begin as minor tributaries to Greenwood Lake (which is half in New York and half in New Jersey) before flowing southwesterly to the Wanaque Reservoir, then further south to Lake Inez. It flows from Lake Inez to its confluence with the Pequannock River at Riverdale. The river's total length is 27 miles. Major tributaries include West Brook and Jennings Creek. There are many lakes, reservoirs and ponds, with the larger ones being the Wanaque Reservoir, Greenwood Lake, Arcadia Lake, and Lake Inez. There are no large population centers, but most of the people live in Ringwood and Wanaque Townships.

Most of the land in this watershed is undeveloped, consisting of vacant lands, reservoirs, parks, and farms. For the most part, the remainder is residential with some land being used for industry and commerce. Of the approximately 10 NJPDES permitted discharges here, about one-third are commercial/industrial, and two-thirds are municipal. The waters of this drainage area have been classified FW-1, FW-2 Trout Production, FW-2 Trout Maintenance and FW-2 Nontrout.

WATER QUALITY ASSESSMENT

Prior to 1991, the Wanaque River had one ambient water quality monitoring station located at Wanaque. This is just downstream of the dam at the Wanaque Reservoir, a major water supply source. As such, water quality conditions in the Wanaque River at Wanaque were highly influenced by the impoundment. Prior to being discontinued, routine monitoring found the Wanaque River to be of good quality with little pollution. The water quality of the Wanaque River at Wanaque, however, is probably not indicative of the entire river because of the influence of the impoundment, a principal reason the chemical monitoring was discontinued there. Conditions are thought to degrade somewhat in a downstream direction.

Biological Monitoring

Biological assessments in the Wanaque River indicate the macroinvertebrate community to be healthy above the reservoir but moderately impaired at the two monitoring locations below the impoundment. Morsetown Brook, a tributary to the Wanaque, is assessed as supporting a nonimpaired biological community. See the Biological Assessment Table located at the end of this section for details regarding macroinvertebrate assessments within the watershed.

POINT SOURCE ASSESSMENT

No facilities were reported to be discharging inadequately treated effluent into the Wanaque River at the present time. One facility has ceased discharging via an ACO:

FACILITY	LOCATION	RECEIVING STREAM	COMMENTS
Marshall Hill School STP	West Milford Twp., Passaic Co.	Belchers Cr.	Facility has ceased discharging.

NONPOINT SOURCE ASSESSMENT

Nonpoint source assessments on the Wanaque River were restricted to the river reaches below the Wanaque Reservoir. In this region, the primary nonpoint pollution sources are those associated with urban/suburban development. These sources have degraded the fishery habitat by contributing to excessive siltation and elevated stream temperatures. West Brook, for example, a unique trout production stream, is threatened by the impact from such development. This stream is special in that it is one of the few streams in our state with a naturally reproducing rainbow trout population.

Other nonpoint pollution sources known to be a problem here include runoff from urban surfaces and roads. In addition, the removal of riparian vegetation along the river has further contributed to stream degradation.

DESIGNATED USE ASSESSMENT

Before 1991 when sanitary sampling was performed in the Wanaque River just below the reservoir, the river was assessed as swimmable based upon fecal coliform testing. It is not known if the river maintained good bacterial quality farther downstream. The Wanaque River will support the "aquatic life" use above the reservoir, but only partially supports the use below the impoundment.

BIOLOGICAL ASSESSMENT TABLE: AREA 3

Mgt Area	Watershd	Site ID	Water Body	Location	Municipality	Sample Date	Biological Impairment Rating
3	7	AN0255	Wanaque R	E Shore Dr	Awosting	Jul 10, 1990	non-impaired
3	7	AN255A	Morsetown Bk	Marshall Hill Rd (abv STP)	W Milford	Apr 30, 1991	non-impaired
3	7	AN255B	Morsetown Bk	Marshall Hill Rd (blw STP)	W Milford	Apr 30, 1991	non-impaired
3	7	AN0256	Wanaque R	Highland Ave (blw STP)	Wanaque	Jul 10, 1990	moderately impaired
3	7	AN0257	Wanaque R	Wanaque Ave	Pompton Lks	Jul 9, 1990	moderately impaired
3	8	AN0258	Pequannock R	Rt 515	N of Stockholm	Aug 3, 1993	moderately impaired
3	8	AN0259	Pequannock R	Rt 23 (abv res)	Stockholm	Jul 22, 1993	non-impaired
3	8	AN0260	Mossmans Bk	Clinton Rd (abv res)	W Milford Twp	Aug 5, 1993	moderately impaired
3	8	AN0261	Clinton Bk	LaRue Rd	W Milford Twp	Jul 27, 1993	severely impaired
3	8	AN0262	Kanouse Bk	Rt 23	Newfoundland	Jul 27, 1993	moderately impaired
3	8	AN0263	Macopin R	blw Echo Lk	W Milford Twp	Jul 27, 1993	non-impaired
3	8	AN0264	Pequannock R	Rt 23 (Macopin Intake)	W Milford Twp	Jul 27, 1993	non-impaired
3	8	AN0265	Pequannock R	Rt 511	Riverdale	Jul 22, 1993	non-impaired
3	9	AN0266	Ramapo R	W Ramapo Ave	Ramsey Twp	Jul 10, 1990	moderately impaired
3	9	AN0267	Ramapo R	Lenape Ln	Oakland	Aug 15, 1985	non-impaired
3	9	AN0267	Ramapo R	Lenape Ln	Oakland	Jul 10, 1990	moderately impaired
3	19	AN0268	Pompton R	Newark Pompton Tnpk	Pequannock Twp	Jul 9, 1990	moderately impaired
3	19	AN268A	Pompton R	Pompton Plains Cross Rd	Pequannock Twp	Jul 9, 1990	moderately impaired
3	19	AN0269	Pompton R trib	Ryerson Rd	Lincoln Pk	Jul 12, 1993	moderately impaired
3	19	AN0270	Packanack Bk	Osbourne Rd	Mountain View	Jul 12, 1993	moderately impaired